

a Character Projection (CP) aperture having shaping holes of the charged beam having shapes of the standard cells;

standard cell library recording means for recording first placement positions of the shaping holes on said CP aperture;

pattern data recording means for recording second placement positions of the standard cells on the substrate, the second placement positions associated with the first placement positions;

a character select deflector irradiating the charged beam onto the shaping holes at the first placement positions; and

an objective deflector irradiating the charged beam onto the second placement positions on the substrate.

7. (Amended) An exposure pattern data generation apparatus for delineating patterns of a system on a substrate to describe the system in a logic expression, to convert the logic expression into a connection of standard cells, and to delineate patterns of the standard cells on the substrate, comprising:

Character Projection (CP) aperture creation means for creating CP apertures having shaping holes corresponding to the standard cells;

Character Projection (CP) aperture decision means for conducting logic synthesis for the CP apertures using the standard cells corresponding to the shaping holes placed on first placement positions on the respective CP apertures, and for selecting the CP aperture used for exposure; and

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placement and routing means for calculating second placement positions of the standard cells on the substrate, the standard cells corresponding to the shaping holes provided on the selected CP aperture.

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15. (Amended) An exposure pattern data generation method for delineating patterns of a system on a substrate to describe the system in a logic expression, to convert the logic expression into a connection of standard cells, and to delineate patterns of the standard cells on the substrate, comprising:

creating Character Projection (CP) apertures having shaping holes corresponding to the standard cells;

conducting logic synthesis for the Character Projection (CP) apertures using the standard cells corresponding to the shaping holes placed at first placement positions on the respective CP apertures;

selecting a CP aperture used for exposure from the CP apertures; and

calculating second placement positions of the standard cells on the substrate, the standard cells corresponding to the shaping holes provided on the selected CP aperture.

REMARKS

By the present Amendment, Applicants amend claims 1, 7, and 15 to more appropriately define the invention. Claims 1-21 are pending.

In the Office Action, the Examiner rejected claims 1-6 under 35 U.S.C. § 103(a) as unpatentable over Murai et al., U.S. Patent No. 5,250,812 ("Murai") in view of Watanabe et al., U.S. Patent No. 6,335,898 ("Watanabe"), and rejected claims 7-21 under 35 U.S.C. § 103(a) as unpatentable over Murai in view of Watanabe, and further

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